

# Tourism and Technological Innovation: the Spectacularization of Cultural Heritage in Rome and Cerveteri

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## In the beginning

Rome can hardly be said to lack tourist attractions and especially opportunities to admire the splendours of its ancient civilization, whose beauty speaks for itself. But what has made one of these—namely the **Domus Romane of Palazzo Valentini**<sup>1</sup>, an archaeological site opened to the public only in 2010 and by no means the most astounding—one of the city's most visited places, the fifth on a list of 212 museums<sup>2</sup>? The answer is unquestionably something seldom on offer in Rome until a few years ago: a combination of the physicality of the ruins with the intangibility of virtual reconstructions and a voice-over that works as a whole to enhance the understanding and enjoyment of what is being seen.

The Domus Romane of Palazzo Valentini are two houses of patrician families built in the late 2<sup>nd</sup> and 3<sup>rd</sup> century. In addition to the buildings, richly decorated with mosaics, wall paintings and floors of inlaid marble, the visit includes the remains of a Roman road, a small baths complex and the area of Trajan's Column at the time of its construction. The carved story of the Dacian Wars that unfolds in low relief around the column can also be seen

close-up in a virtual reconstruction. A multi-language, multimedia system developed by the science popularizers Piero Angela<sup>3</sup> and Paco Lanciano<sup>4</sup> in collaboration with technicians and archaeologists further enhances the accessibility of the site and brings the different areas back to life. This operation has proved successful in various respects. In addition to constituting a cultural model for the subsequent virtualization of a whole range of sites all over Rome and a showpiece for the company that produced it, it has provided the institutional bodies concerned with a percentage of the revenues sufficient to ensure the necessary maintenance and the continuation of excavation work.

The boost given to Rome's tourism by the Domus Romane of Palazzo Valentini has also led to numerous similar multimedia experiences for visitors, sometimes temporary, as in the case of the forums of Augustus and Caesar, and sometimes permanent, e.g. the Banditaccia necropolis and the Museo Nazionale Etrusco, both in Cerveteri<sup>5</sup>. While associated with no sight-seeing attraction in particular, the recently developed Welcome to Rome show has also enjoyed immediate success with the public<sup>6</sup>. And these are just a few examples.



A surprise!  
The eighth wonder of the world.  
Antiquity and modernity together.  
The gifts of Rome.  
(Tripadvisor Users)

### Public-private partnerships

The true innovation in every case lies not so much in the type of experience—something seldom on offer in Italy for all too long, not least because of the snobbish view of popularization as inherently non-cultural adopted above all by the scientific establishment—as in the fact that the institutions involved at the state and municipal level are finally ready to believe and invest in it. The Ministry of Cultural Heritage and Activities and Tourism (MiBACT) is about to sign an agreement with the Italian National Research Council on a variety of activities including an inventory of the projects using virtual and/or augmented reality already in place<sup>2</sup>.

Among the most popular “archaeoshows”, at the price of two separate tickets or one all-inclusive, **Viaggio nei Fori** enables the visitor/spectator to enjoy immersive storytelling through earphones while comfortably seated on a stand opposite the Forum of Augustus and/or strolling through the monumental remains and discoveries of the Forum of Caesar to the accompaniment of an evocative and immersive spectacle enriched with music and special effects. The calm and pleasant voice of Piero Angela is unquestionably another

factor contributing to the success of the Italian version.

Similar multimedia systems of immersive, visual storytelling have been used, with the support of technicians from the relevant heritage superintendencies, to recount the tales and burial rites connected with some tombs of the Banditaccia Etruscan necropolis in Cerveteri, where individual spectators or small groups can see figures, interiors and grave goods on the walls of volcanic rock. This storytelling approach proves very popular with the numerous organized school trips. Unfortunately, however, the dampness of the tombs is proving harmful to the multimedia systems, which are still operating in only a few of the original eight involved. The use of virtual reality technologies for items of cultural heritage outside museums does in fact present problems of considerable complexity as regards maintenance and sustainability.

Before or after the necropolis, visitors can see a whole variety of finds from the various burial sites of Cerveteri in the Museo Nazionale Archeologico Etrusco. Some items are exhibited in interactive, multimedia showcases equipped with touch-screen technology. Augmented reality, 3D reconstructions, sound and video effects bring

various aspects, curiosities and stories of the mysterious Etruscan civilization to life.

The connection between cultural heritage and high-tech has thus become increasingly close in the last few years. In 2016 the cultural and creative production system generated approximately €90bn of value added at the national level, €1.6bn more than the previous year, and employed a constantly expanding workforce of over one and a half million<sup>8</sup>.

The Lazio region is a major tourist destination accounting for 22.3% of visitors to Italian museums<sup>9</sup>. The increase of 13.44% registered for the flow of visitors in 2017 was, however, mainly concentrated in Rome despite the abundance of places of exceptional importance and beauty throughout the region. Moreover, Italian museums in general make little use of digital infrastructures, above all because they are poorly equipped in technological terms. This factor drastically reduces the services they can offer visitors and therefore their potential attraction<sup>10</sup>.

It is precisely to fill this gap that the *Distretto Tecnologico per i Beni e le Attività Culturali* (DTC) was created in 2008 by the Lazio Region together with the MiBACT and various universities as a tool of economic and territorial development involving the host

of small and medium-sized firms operating in the sector. One concrete result is a recent call for tenders<sup>11</sup> with funding of €23.5mn for highly innovative development projects of an immersive and spectacular nature in the field of cultural heritage.

### Research applied to cultural heritage

The powerful combination of actual and virtual reality not only enhances the experience but also affords a better understanding of what is not immediately visible to most visitors, including the best informed. An example is provided by the **church of Santa Maria Antiqua**<sup>12</sup>, whose closure for twelve centuries after the earthquake of 847 resulted in the integral preservation of its palimpsest of superimposed layers of frescoes from different eras. The technology of videomapping, which illuminates certain parts of the surface on a rotating basis while excluding others and reconstructing missing sections of decoration so as to isolate the various strata of the palimpsest, makes the succession of stages comprehensible also to a public of non-experts (Fig. 1).

Technology comes to the aid of the imagination, revealing what is sometimes not evident even to specialists, also in fields like archaeology, where the often fragment-

Domina lo spazio  
Cristo in croce vestito da  
san Giovanni. Longino  
Cristo in the cross dr  
the Virgin, St. John, a  
dominates the spa



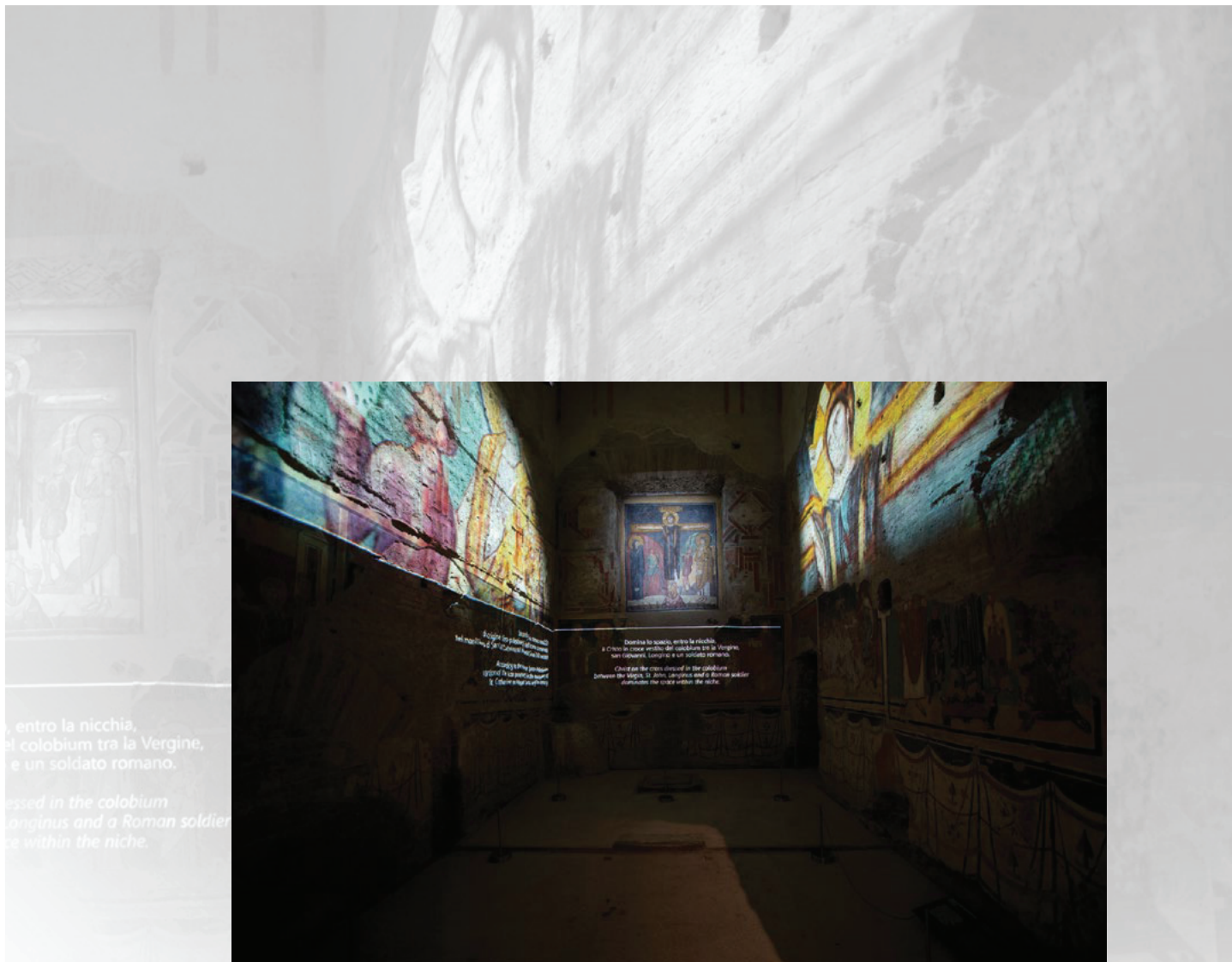


Fig. 1. Church of Santa Maria Antiqua. Photo: C. Pescatori

ary nature of a monument or artwork can impede enjoyment, as in the case of the Domus Aurea, Nero's palace. *I realized that it was impossible to grasp the essence of this place simply through visits, as they give a misleading idea of what it was at the time of its construction. This could only be done through the virtual reality offered by modern technology.* These are not the words of a bewildered tourist but of Francesco Prosperetti, head of the Special Superin-

tendency for Archaeology, Fine Arts and the Natural Landscape of Rome, on the launching of the system of 3D visits to the Domus Aurea. While the palace is now devoid of all the decorations that made it famous, stereoscopic VR visors make it possible at the weekend for groups of up to 25 persons at a time to behold the glowing colours of frescoes and polychrome marbles that once adorned the room with the gilded ceiling<sup>13</sup>.



The real innovation of the last few years is the transition from the phase of development to the stage of launching on the market, enabling many places to offer tourists much more through the combined efforts of cultural bodies, firms and research centres<sup>14</sup>. The most recent is **Caracalla Full Immersion**<sup>15</sup>, the new all-round visual experience of the Baths of Caracalla jointly developed by the Special Superintendency for Rome, Coopculture and the Consiglio Nazionale per le Ricerche. The use of VR visors at specific points in the complex offers the visitor a 3D reconstruction superimposing a virtual image on the actual monument so as to enhance the visual effect and permit immediate understanding of what the spaces looked like at the time of the inauguration in the year 216. The richness and accuracy of the operation are further increased by the virtual positioning of statues and sculptural elements—including the *Hercules*<sup>16</sup> and the *Farnese Bull*<sup>17</sup>, now in the Museo Archeologico Nazionale in Naples—in their original places in the baths. While this would have entailed the use of cumbersome technology just a few years ago, cardboard virtual reality now offers an immersive experience akin to natural vision with the use of lightweight, portable visors.

## Immersive experiences

Where is this trend leading us? Is culture becoming more pop and high-tech? Perhaps, but its impact on the public is also more direct and indelible. It is the concept of edutainment that is becoming more sophisticated. **The Last Judgment. Michelangelo and the Secrets of the Sistine Chapel** is a full-immersion experience in Italian and English, financed entirely through private investment to the tune of €9 million, which combines the Vatican Museums and Sting, high-tech and high-quality music, performance and precise scholarly information<sup>18</sup>. Sixty minutes of projections combine with dance and theatre in a reconstruction of the history of the Sistine Chapel during which spectators see the figures detached from the frescoes soaring above their heads and find themselves with Noah in the Flood (fig. 2–4)—a powerful way to communicate art and faith in the scholarly orthodoxy of the story devised by Marco Balich on the strength of his experience in the organization of Olympic ceremonies. The show, an immediate success with the public (102 000 spectators, 38% of whom Italian, in the first 100 performances<sup>19</sup>) that also enjoys the approval of the Vatican, will be repeated for at least a year at the *Auditorium della Conciliazione* in Rome. The





Fig. 2. The last judgement. The Great Flood

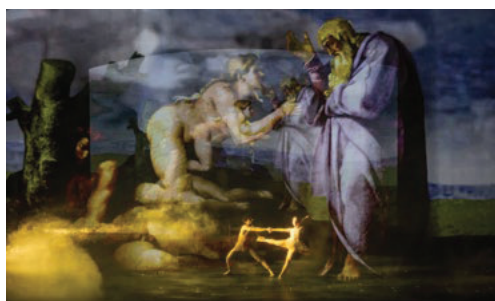


Fig. 3. The last judgement. The original sin



Fig. 4. The last judgement. Eden. Photo: Luca Parisse

ceiling and walls are covered with screens for 270-degree projections allowing the spectators to behold the works of Michelangelo as though they were perched on scaffolding in an authentic multisensory experience including the smell of incense used in religious celebrations. The show proved a great and immediate success with a public of residents, tourists and school parties. Developed in collaboration with the Fondazione Bracco, the Artainment@School has enjoyed great popularity with schools from the very outset.

Another example of immersive virtual experience is provided by **Welcome to Rome** at the former Cinema Augustus, a twenty-minute journey through time that presents the city's urban, architectural and artistic evolution from its foundation to the papal era. A voice-over tells the story presented in spectacular projections on the walls and ceiling, while a huge model of the Eternal City on the floor lights up its different parts in step with the narrative. To one side, visitors waiting to enter can beguile the time with showcases, holograms, projections, models with moving parts, maps and images of Rome and its monuments through the ages (Fig. 5–6). Very popular with families with children, that is too expensive for schools and perhaps not attractive enough for tourists faced with dozens of other cultural alternatives.

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Fig. 5. Welcome to Rome. Projections on the walls and ceiling, Photo: Mattia Migliori



Fig. 6. Welcome to Rome. 3D reconstruction of Hadrian's Mausoleum, Castel S. Angelo. Photo: Mattia Migliori



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Uncommon  
Culture



The site-specific system with Samsung GearVR visors now in place at the **Ara Pacis** enables visitors to observe the high-relief panels of the altar in the Campus Martius dedicated by Augustus to Peace in 9 AD in all the splendour of its original colours, thus facilitating their reading and understanding of the narrative. Moreover, the combination of live film and digital graphic reconstructions in 3D of the ancient setting enables tourists to behold Augustus like contemporary Romans while he celebrates the pacification of the newly-born empire before the altar. The project was developed with a tracking system capable of recognizing the three-dimensional nature of the reliefs, analyzing them in real time, associating their augmented content with real objects and offering an authentic experience of full immersion accompanied by the pleasant voices of the actors Luca Ward and Manuela Mandracchia (Fig. 7)<sup>20</sup>. The impact of the spectacularization of the Ara Pacis will be further enhanced when visitors no longer need to hold the visors in their hands, which can prove detrimental to comfort and full involvement in the long run.

## Conclusions

We shall end this brief overview with the latest projects of the Archaeological Park of the Colosseum<sup>21</sup>, the most popular monu-

ment in Rome with thousands of visitors every day. It is for this very reason that it was decided to admit limited audiences in the evening for three daily showings of **Sangue e Arena (Blood and Sand)**, produced in four months at a cost of half a million euros. The amphitheatre comes to life with the emotions of the ancient spectators of aquatic dances, gory gladiatorial combat and the hunting of wild beasts from distant provinces of the Empire. It was in 80 AD that the emperor Titus inaugurated the Flavian Amphitheatre built by his father Vespasian with one hundred days of uninterrupted celebrations. The testimony of an exceptional eye-witness, the poet Martial, has been handed down in his *Liber de spectaculis*. The images come projected onto a special large screen but also on the rest of the arena and the side walls. A new-generation *son et lumière* with sound, visual effects and a hologram display produced by the Canadian firm Graphics eMotion, who constructed the immersive narrative with the support of an advisory committee made up of representatives of the management of the monument and the archaeological park as well as a pool of experts (Fig. 8–9).

Technology is becoming an authentic business. The archaeological park of the Forum and the Palatine is offering a **SUPER (Seven Unique Places to Experience**





Fig. 7. Ara Pacis. Experience of full immersion. Photo: J. D'Albera.

**Rome)** ticket at a higher price for visits in limited numbers to otherwise inaccessible parts of the park: the houses of Augustus and Livia, the Antiquarium del Palatino, the Aula Isiaca and the Loggia Mattei, the Temple of Romulus and the church of Santa Maria Antiqua. Holders of this ticket, which can be used over two days and includes a map, are admitted to a thrilling experience in which buildings, paintings, decorations and ornamental floors are enhanced and made more comprehensible by

means of multimedia systems, high-tech reconstructions, video projections and lightmapping. The addition of €1m to the park's budget made it possible to recruit the 27 new members of reception and security staff required to guarantee the opening and smooth functioning of the structures involved.

The preconception that it is impossible to do business and make honourable profits with culture thus appears to be losing ground



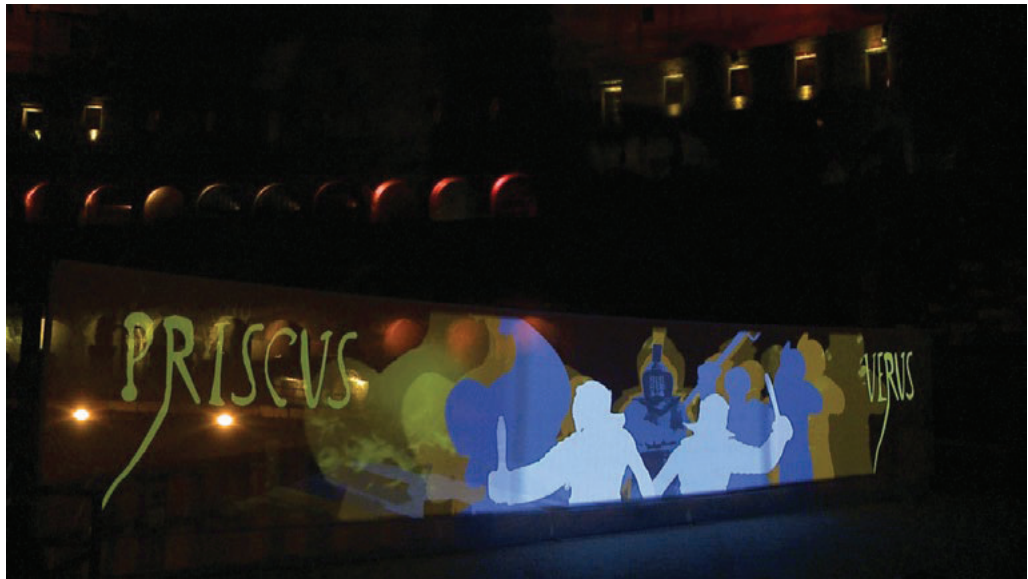


Fig. 8. Colosseum. Blood and Sand Show. Courtesy Electa.



Fig. 9. Colosseum. Blood and Sand Show. Courtesy Electa.

precisely due to the use of technology, as recently attested by the news that eleven major international firms have set up a consortium with a multi-year project to improve the managerial efficiency and cultural attraction of two important Roman art museums, namely Palazzo Barberini and Galleria Corsini<sup>22</sup>. The plan, entitled *WeACT3, Agire insieme. La tecnologia per arte, cultura, turismo e territorio*, goes far beyond simple sponsorship in an effort to increase the connection between people, technologies, works and museums through initiatives like the hackathon currently under way to imagine the museum of the future<sup>23</sup>.

All these experiences lend great impetus to the development of research, edutainment and the many firms operating in the cultural and creative sector in Italy. At the same time, European projects with a strong Italian presence such as 3D-ICONS<sup>24</sup> have also made a crucial contribution towards making the cultural heritage more accessible to the general public through technologies of virtual reality while safeguarding the scholarly rigour of the reconstructions developed. The increasing attention focused in recent years on quality initiatives in the digitization of cultural heritage, starting with the Google Arts & Culture project<sup>25</sup>, which played an important part in enabling

cultural information to emerge vibrantly from traditional databases, has made it possible to develop academic pathways in which the study of antiquity is combined with computer science and technology in general, thus allowing young researchers to explore new channels of communication. At the same time, the use of high-tech at the service of cultural heritage also constitutes a great opportunity for firms and independent developers with marked narrative, scenographic and design skills. As a result, increasingly innovative and immersive forms of spectacularization will unquestionably become available in the not too distant future.

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